



SEQUENCE LISTING

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<120> CXC Chemokine Receptor 4 Agonist Peptides

<130> 080421-000100US

<140> US 10/086,177  
<141> 2002-02-26

<150> CA 2,305,036  
<151> 2000-04-12

<150> US 60/232,425  
<151> 2000-09-14

<150> CA 2,335,109  
<151> 2001-02-23

<150> US 09/835,107  
<151> 2001-04-12

<160> 214

<170> PatentIn version 3.3

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<213> Homo sapiens

<220>  
<223> human SDF-1alpha

<400> 1  
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser  
1 5 10 15  
His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn Thr Pro  
20 25 30  
Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn Arg Gln  
35 40 45  
Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys  
50 55 60  
Ala Leu Asn  
65

<210> 2  
<211> 93  
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<213> Homo sapiens

<220>

<223> human SDF-1 precursor, PBSF

<400> 2

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Met Asn Ala Lys Val Val Val Val Leu Val Leu Val Leu Thr Ala Leu
1          5          10          15
Cys Leu Ser Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys
          20          25          30
Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys
          35          40          45
Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys
          50          55          60
Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln
65          70          75          80
Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
          85          90
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<210> 3

<211> 93

<212> PRT

<213> Homo sapiens

<220>

<223> human SDF-1beta

<400> 3

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Met Asn Ala Lys Val Val Val Val Leu Val Leu Val Leu Thr Ala Leu
1          5          10          15
Cys Leu Ser Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys
          20          25          30
Arg Phe Phe Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys
          35          40          45
Ile Leu Asn Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys
          50          55          60
Asn Asn Asn Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln
65          70          75          80
Glu Tyr Leu Glu Lys Ala Leu Asn Lys Arg Phe Lys Met
          85          90
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<210> 4

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic CXCR4 agonist SDF-1(1-17), CTCE9902

<400> 4

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Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser
1          5          10          15
His
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<210> 5

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> CXCR4 agonist sequence motif within 20 amino acids  
of the N-terminus

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<400> 5
Arg Phe Phe Glu Ser His
1 5

<210> 6
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic SDF-1 peptide analogue CXCR4 agonist

<400> 6
Lys Pro Val Ser Leu Ser Tyr Arg Cys
1 5

<210> 7
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist SDF-1(1-9)-2-C9/C9-cysteine dimer,
CTCE9901

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> dimerised by formation of a disulfide bond between two Cys
residues in position 7 of two SEQ ID NO:7 peptides

<400> 7
Lys Pro Val Ser Leu Ser Tyr Arg Cys
1 5

<210> 8
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1(1-9)-2
(Compound #3)

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Xaa = Lys whose epsilon amino group forms a covalent amide
bond with the alpha amino group of Cys at position 9 of
KPVSLSYRC (SEQ ID NO:9), thereby forming a dimer

<400> 8
Lys Pro Val Ser Leu Ser Tyr Arg Cys Xaa
1 5 10

<210> 9
<211> 9
<212> PRT
<213> Artificial Sequence

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<220>
<223> portion of synthetic CXCR4 agonist SDF-1(1-9)-2
      (Compound #3)

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = Cys whose alpha amino group forms a covalent amide
      bond with the epsilon amino group of Lys at position 10
      of KPVSLSYRCX (SEQ ID NO:8), thereby forming a dimer

<400> 9
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1              5

<210> 10
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist dimer of SDF-1 amino
      acids 1-8

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = Lys whose epsilon amino group forms a covalent amide
      bond with the alpha amino group of Arg at position 8 of
      KPVSLSYX (SEQ ID NO:11), thereby forming a dimer

<400> 10
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1              5

<210> 11
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist dimer of SDF-1 amino
      acids 1-8

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Xaa = Arg whose alpha amino group forms a covalent amide
      bond with the epsilon amino group of Lys at position 9
      of KPVSLSYRX (SEQ ID NO:10), thereby forming a dimer

<400> 11
Lys Pro Val Ser Leu Ser Tyr Xaa
1              5

<210> 12
<211> 30
<212> PRT
<213> Artificial Sequence

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<220>  
 <223> synthetic CXCR4 agonist SDF-1(1-14)-(G)-3-SDF-1(55-67)  
 acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(17)  
 <223> Gly in position 17 may be present or absent

<400> 12  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 13  
 <211> 31  
 <212> PRT  
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<220>  
 <223> synthetic CXCR4 agonist SDF-1(1-14)-(G)-4-SDF-1(55-67)  
 acid, CTCE0013

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may independently be  
 present or absent

<400> 13  
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 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 14  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist SDF-1(1-14)-(G)-3-SDF-1(55-67)  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(17)  
 <223> Gly in position 17 may be present or absent

<220>  
 <221> MOD\_RES  
 <222> (30)..(30)  
 <223> AMIDATION

<400> 14  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 15  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CXCR4 agonist SDF-1(1-14)-(G)-4-SDF-1(55-67)  
 amide, CTCE0017, Compound A  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may independently be  
 present or absent  
  
 <220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
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 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 16  
 <211> 33  
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 <213> Artificial Sequence  
  
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 <223> synthetic CXCR4 agonist SDF-1(1-17)-(G)-3-SDF-1(55-67)  
 acid  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (20)..(20)  
 <223> Gly in position 20 may be present or absent  
  
 <400> 16  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser  
 1 5 10 15  
 His Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu  
 20 25 30  
 Asn  
  
 <210> 17  
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 <223> synthetic CXCR4 agonist SDF-1(1-17)-(G)-4-SDF-1(55-67)  
 acid  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (20)..(21)  
 <223> Gly in positions 20 and/or 21 may independently be  
 present or absent

<400> 17  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser  
 1 5 10 15  
 His Gly Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala  
 20 25 30  
 Leu Asn

<210> 18  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist SDF-1(1-17)-(G)-3-SDF-1(55-67)  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(20)  
 <223> Gly in position 20 may be present or absent

<220>  
 <221> MOD\_RES  
 <222> (33)..(33)  
 <223> AMIDATION

<400> 18  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser  
 1 5 10 15  
 His Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu  
 20 25 30  
 Asn

<210> 19  
 <211> 34  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(21)  
 <223> Gly in positions 20 and/or 21 may be independently  
 present or absent

<220>  
 <221> MOD\_RES  
 <222> (34)..(34)  
 <223> AMIDATION

<400> 19  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Glu Ser  
 1 5 10 15  
 His Gly Gly Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala  
 20 25 30  
 Leu Asn

<210> 20  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-E24/K28-cyclic acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<400> 20  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 21  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-K20/E24-cyclic acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<400> 21  
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 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 22  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-E24/K28-cyclic amide,  
 CTCE0022



<220>  
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 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 22  
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 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 23  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14) - (G) -4-SDF-1(55-67) -K20/E24-cyclic amide,  
 CTCE0021, Compound B

<220>  
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 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
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 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 23  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 24  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14) - (G) -4-SDF-1(55-67) -K20/D24 - (E24->D) -cyclic  
 acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<400> 24  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 25  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14) - (G) -4-SDF-1(55-67) -K20/D24 - (E24->D) -cyclic  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 25  
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 1 5 10 15  
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 20 25 30

<210> 26  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-C9/C11-cyclic acid

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(11)  
 <223> cyclized with disulfide bridge

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<400> 26  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 27  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 SDF-1(1-14)-(G)-4-SDF-1(55-67)-C9/C11-cyclic amide

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(11)  
 <223> cyclized with disulfide bridge

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 27  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 28  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-MIP-1alpha(36-50)-acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<400> 28  
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 1 5 10 15  
 Gly Gly Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Ser Arg Gln  
 20 25 30  
 Val

<210> 29  
 <211> 58  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 SDF-1(1-14)-(G)-4-MIP-1alpha(11-50)-acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<400> 29  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe  
 20 25 30  
 Ile Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Gly Val  
 35 40 45  
 Ile Phe Leu Thr Lys Arg Ser Arg Gln Val  
 50 55

<210> 30  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 SDF-1(1-14)-(G)-4-MIP-1alpha(56-70)-acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<400> 30  
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 1 5 10 15  
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 20 25 30  
 Ala

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<210> 31
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist
      SDF-1(1-8)-2-lysine bridge dimer, CTCE9904

<220>
<221> MOD_RES
<222> (9)..(9)
<223> Xaa = lysinamide whose epsilon amino group forms a
      covalent amide bond with the alpha amino group of Arg at
      position 8 of KPVSLSYX (SEQ ID NO:32), thereby forming a
      dimer

<400> 31
Lys Pro Val Ser Leu Ser Tyr Arg Xaa
1              5

<210> 32
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist
      SDF-1(1-8)-2-lysine bridge dimer, CTCE9904

<220>
<221> MOD_RES
<222> (8)..(8)
<223> Xaa = Arg whose alpha amino group forms a covalent amide
      bond with the epsilon amino group of lysinamide at
      position 9 of KPVSLSYRX (SEQ ID NO:31), thereby forming a
      dimer

<400> 32
Lys Pro Val Ser Leu Ser Tyr Xaa
1              5

<210> 33

<400> 33
000

<210> 34

<400> 34
000

<210> 35
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist SDF-1-derived cyclic amide
      (E24/K28)

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<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyetheleneglycol (PEG) moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 35  
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 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 36  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist SDF-1-derived cyclic acid (K20/E24)

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyetheleneglycol (PEG) moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a D-Leu Moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
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 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 36  
 Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 37  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-K28/D24-(E24->D)-cyclic acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<400> 37  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 38  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-K28/D24-(E24->D)-cyclic  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 38  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 39  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/E24-(K20->O)-cyclic  
 acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(20)  
 <223> Xaa = Orn

<220>  
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 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<400> 39  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Xaa Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30



<210> 40  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/E24-(K20->O)-cyclic  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(20)  
 <223> Xaa = Orn

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 40  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Xaa Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 41  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/E24-(K28->O)-cyclic  
 acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MISC\_FEATURE  
 <222> (28)..(28)  
 <223> Xaa = Orn

<400> 41  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Xaa Ala Leu Asn  
 20 25 30

<210> 42  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/E24-(K28->O)-cyclic  
 amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MISC\_FEATURE  
 <222> (28)..(28)  
 <223> Xaa = Orn

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 42  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Xaa Ala Leu Asn  
 20 25 30

<210> 43  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/D24-(K20->O  
 & E24->D)-cyclic acid

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<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
      present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> Xaa = Orn

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<400> 43
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Xaa Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
      20          25          30

<210> 44
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CXCR4 agonist
      SDF-1(1-14)-(G)-4-SDF-1(55-67)-O20/D24-(K20->O
      & E24->D)-cyclic amide

<220>
<221> MISC_FEATURE
<222> (17)..(18)
<223> Gly in positions 17 and/or 18 may be independently
      present or absent

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> Xaa = Orn

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 44
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Xaa Trp Ile Gln Asp Tyr Leu Glu Lys Ala Leu Asn
      20          25          30

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<210> 45  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/D24-(K28->O  
 & E24->D)-cyclic acid

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MISC\_FEATURE  
 <222> (28)..(28)  
 <223> Xaa = Orn

<400> 45  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Xaa Ala Leu Asn  
 20 25 30

<210> 46  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-SDF-1(55-67)-O28/D24-(K28->O  
 & E24->D)-cyclic amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MISC\_FEATURE  
 <222> (28)..(28)  
 <223> Xaa = Orn

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 46  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Asp Tyr Leu Glu Xaa Ala Leu Asn  
 20 25 30  
  
 <210> 47  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-MIP-1alpha(36-50)-amide  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent  
  
 <220>  
 <221> MOD\_RES  
 <222> (33)..(33)  
 <223> AMIDATION  
  
 <400> 47  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Ser Arg Gln  
 20 25 30  
 Val  
  
 <210> 48  
 <211> 58  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CXCR4 agonist  
 SDF-1(1-14)-(G)-4-MIP-1alpha(11-50)-amide  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
 present or absent  
  
 <220>  
 <221> MOD\_RES  
 <222> (58)..(58)  
 <223> AMIDATION  
  
 <400> 48  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15

Gly Gly Cys Cys Phe Ser Tyr Thr Ser Arg Gln Ile Pro Gln Asn Phe  
                   20                  25                  30  
 Ile Ala Asp Tyr Phe Glu Thr Ser Ser Gln Cys Ser Lys Pro Gly Val  
                   35                  40                  45  
 Ile Phe Leu Thr Lys Arg Ser Arg Gln Val  
           50                  55

<210> 49  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist  
       SDF-1(1-14) - (G) -4-MIP-1alpha(56-70) -amide

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently  
       present or absent

<220>  
 <221> MOD\_RES  
 <222> (33)..(33)  
 <223> AMIDATION

<400> 49  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
   1                  5                  10                  15  
 Gly Gly Glu Glu Trp Val Gln Lys Tyr Val Asp Asp Leu Glu Leu Ser  
                   20                  25                  30  
 Ala

<210> 50  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist SDF-1-derived E24/K28-cyclic  
       amide

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a  
       hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a  
       D-Pro moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a  
       D-Leu moiety



<210> 52  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CXCR4 agonist SDF-1-derived  
 E24/K28-cyclic amide  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:51) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION  
  
 <400> 52  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10  
  
 <210> 53  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CXCR4 agonist SDF-1-derived K20/E24-cyclic  
 amide  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a  
 hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a  
 D-Pro moiety  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a  
 D-Leu moiety



<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 53  
 Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 54  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CXCR4 agonist SDF-1-derived K20/E24-cyclic amide

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a D-Pro moiety

<220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a D-Leu moiety

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN (SEQ ID NO:55) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 54  
 Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa  
 1 5 10

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<210> 55
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived
      K20/E24-cyclic amide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      X (SEQ ID NO:54) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 55
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 56
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 56
Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

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<210> 57  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 57  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 58  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:59) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 58  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa  
 1 5 10  
  
 <210> 59  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:58) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 59
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 60
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 60
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 61
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:62) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 61  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa  
 1 5 10

<210> 62  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:61) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 62  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 63  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

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<400> 63
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 64
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:65) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 64
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa
1          5          10

<210> 65
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:64) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 65
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 66
<211> 31
<212> PRT
<213> Artificial Sequence

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<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 66  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 67  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:68) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 67  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe  
 1 5 10

<210> 68  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:67) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> cyclized

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 68
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 69
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 69
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
      20          25          30

<210> 70
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:71) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 70  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa  
 1 5 10

<210> 71  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:70) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 71  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 72  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 72  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 73  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:74) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 73  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa  
 1 5 10

<210> 74  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:73) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 74  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 75  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 75  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 76  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:77) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 76  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa  
 1 5 10

<210> 77  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:76) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 77
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 78
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 78
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
      20          25          30

<210> 79
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:80) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 79
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa
1          5          10

<210> 80
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:79) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 80
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 81
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

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<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 81  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 82  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
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 <220>  
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 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:83) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 82  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa  
 1 5 10  
  
 <210> 83  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:82) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION  
  
 <400> 83  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 84  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
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 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 84  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 85  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:86) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 85  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa  
 1 5 10  
  
 <210> 86  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:85) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 86  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 87  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 87  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 88  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:89) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)



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<400> 88
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1          5          10

<210> 89
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:88) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 89
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 90
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

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<400> 90
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 91
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:92) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 91
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1          5          10

<210> 92
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:91) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 92
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

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<210> 93  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 93  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 94  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:95) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 94  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa  
 1 5 10  
  
 <210> 95  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:94) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 95  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 96  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 96  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 97  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
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 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:98) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 97  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa  
 1 5 10

<210> 98  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:97) via a moiety providing covalent attachment  
 between N and C terminal portions of the peptides, such  
 as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 98  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 99  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

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<400> 99
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 100
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:101) via a moiety providing covalent attachment
      between N and C terminal portions of the peptides, such
      as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 100
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa
1          5          10

<210> 101
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX
      (SEQ ID NO:100) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 101
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 102
<211> 31
<212> PRT
<213> Artificial Sequence

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<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 102  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 103  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:104) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 103  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa  
 1 5 10

<210> 104  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:103) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 104
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1           5           10

<210> 105
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 105
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1           5           10           15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
      20           25           30

<210> 106
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:107) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 106  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa  
 1 5 10

<210> 107  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:106) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 107  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 108  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 108  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 109  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:110) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 109  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa  
 1 5 10

<210> 110  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:109) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<400> 110  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 111  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 111  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 112  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:113) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 112  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa  
 1 5 10

<210> 113  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:112) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

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<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 113
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 114
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 114
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 115
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:116) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 115  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa  
 1 5 10

<210> 116  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:115) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 116  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 117  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 117  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

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<210> 118
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:119) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 118
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1              5              10

<210> 119
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:118) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 119
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1              5              10

<210> 120
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 120  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly  
 1                      5                      10                      15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
                     20                      25                      30

<210> 121  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:122) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 121  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa  
 1                      5                      10

<210> 122  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPGRFX  
 (SEQ ID NO:121) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 122
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 123
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 123
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 124
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:125) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 124
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1          5          10

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<210> 125
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
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<220>
<221> MOD_RES
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<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX
      (SEQ ID NO:124) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (2)..(6)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 125
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1             5             10

<210> 126
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0021-like analog CXCR4 agonist

<220>
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<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (20)..(24)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 126
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1             5             10             15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
      20             25             30

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<210> 127  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:128) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 127  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa  
 1 5 10

<210> 128  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0021-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:127) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
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 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 128  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 129  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
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 <222> (1)..(1)  
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<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 129  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 130  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:131) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 130  
 Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Xaa  
 1 5 10

<210> 131  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:130) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 131
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 132
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 132
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 133
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
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<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:134) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 133  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa  
 1 5 10

<210> 134  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
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 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:133) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 134  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 135  
 <211> 31  
 <212> PRT  
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<220>  
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<220>  
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 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 135  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 136  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:137) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 136  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa  
 1 5 10

<210> 137  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
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 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:136) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 137  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 138  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
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 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 138  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly  
 1                   5                   10                   15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
           20                   25                   30

<210> 139  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:140) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 139  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa  
 1                   5                   10

<210> 140  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:139) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 140
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 141
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 141
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 142
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:143) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 142  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro His Arg Phe Xaa  
 1 5 10

<210> 143  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:142) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 143  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 144  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 144  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 145  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIIQEYLEKALN  
 (SEQ ID NO:146) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 145  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa  
 1 5 10

<210> 146  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:145) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 146  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 147  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

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<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 147
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 148
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:149) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 148
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Trp Arg Phe Xaa
1          5          10

<210> 149
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
X (SEQ ID NO:148) via a moiety providing covalent
attachment between N and C terminal portions of the
peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 149
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1 5 10

<210> 150
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 150
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly
1 5 10 15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20 25 30

<210> 151
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
X (SEQ ID NO:152) via a moiety providing covalent
attachment between N and C terminal portions of the
peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 151  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa  
 1 5 10

<210> 152  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:151) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 152  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 153  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 153  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 154  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:155) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 154  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Ala Arg Phe Xaa  
 1 5 10

<210> 155  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:154) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation.

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 155  
 Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

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<210> 156
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 156
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 157
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:158) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 157
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa
1          5          10

<210> 158
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:157) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 158
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 159
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 159
Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 160
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:161) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 160  
 Lys Pro Val Ser Leu Ser Tyr Arg His Pro Ala Arg Phe Xaa  
 1 5 10

<210> 161  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:160) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 161  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 162  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 162  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 163  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:164) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 163  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa  
 1 5 10

<210> 164  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:163) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 164  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 165  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

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<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 165
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 166
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:167) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 166
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Ala Arg Phe Xaa
1          5          10

<210> 167
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
X (SEQ ID NO:166) via a moiety providing covalent
attachment between N and C terminal portions of the
peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 167
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 168
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 168
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20          25          30

<210> 169
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
X (SEQ ID NO:170) via a moiety providing covalent
attachment between N and C terminal portions of the
peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 169
Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa
1          5          10

<210> 170
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:169) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 170
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 171
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

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<400> 171  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 172  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:173) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 172  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Tyr Arg Phe Xaa  
 1 5 10

<210> 173  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:172) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 173  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 174  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION  
  
 <400> 174  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30  
  
 <210> 175  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:176) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 175  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa  
 1 5 10  
  
 <210> 176  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX  
 (SEQ ID NO:175) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 176
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 177
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 177
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 178
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

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<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:179) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 178  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Tyr Arg Phe Xaa  
 1 5 10

<210> 179  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:178) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 179  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 180  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 180  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 181  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:182) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 181  
 Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa  
 1 5 10

<210> 182  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:181) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 182  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 183  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

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<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 183
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 184
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:185) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 184
Lys Pro Val Ser Leu Ser Tyr Arg Tyr Pro Ala Arg Phe Xaa
1          5          10

<210> 185
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:184) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 185
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 186
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 186
Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
      20          25          30

<210> 187
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:188) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<400> 187  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa  
 1 5 10

<210> 188  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:187) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 188  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 189  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 189  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 190  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:191) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 190  
 Lys Pro Val Ser Leu Ser Tyr Arg Phe Pro Phe Arg Phe Xaa  
 1 5 10

<210> 191  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:190) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 191  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

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<210> 192
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 192
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 193
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:194) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 193
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1          5          10

<210> 194
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX
      (SEQ ID NO:193) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

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<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 194
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 195
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (31)..(31)
<223> AMIDATION

<400> 195
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
          20          25          30

<210> 196
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Lys is modified with polyethylene glycol (PEG)

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<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:197) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 196
Lys Pro Val Ser Leu Ser Tyr Arg His Pro His Arg Phe Xaa
1          5          10

<210> 197
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:196) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 197
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1          5          10

<210> 198
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MISC_FEATURE
<222> (24)..(28)
<223> side chain cyclized using lactam formation

<400> 198
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly
1          5          10          15
Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
20          25          30

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<210> 199
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:200) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 199
Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa
1              5              10

<210> 200
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRFX
      (SEQ ID NO:199) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 200
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1              5              10

<210> 201
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic CTCE0022-like analog CXCR4 agonist

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<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(28)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 201  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 202  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Lys is modified with polyethylene glycol (PEG)

<220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:203) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 202  
 Lys Pro Val Ser Leu Ser Tyr Arg Trp Pro Trp Arg Phe Xaa  
 1 5 10

<210> 203  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CTCE0022-like analog CXCR4 agonist

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF  
 (SEQ ID NO:202) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION  
  
 <400> 203  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10  
  
 <210> 204  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic  
 amide (E24/K28)  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (1)..(1)  
 <223> Lys may be modified with a substituent that may be a  
 hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa = an amino acid that may be either an L-Pro or a  
 D-Pro moiety  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (5)..(5)  
 <223> Xaa = an amino acid that may be either an L-Leu or a  
 D-Leu moiety  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:205) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 204  
 Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa  
 1 5 10  
  
 <210> 205  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic  
 amide (E24/K28)

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<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF
      (SEQ ID NO:204) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>
<221> MISC_FEATURE
<222> (6)..(10)
<223> side chain cyclized using lactam formation

<220>
<221> MOD_RES
<222> (13)..(13)
<223> AMIDATION

<400> 205
Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn
1           5           10

<210> 206
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic
      acid (K20/E24)

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Lys may be modified with a substituent that may be a
      hydrogen, alkyl, aryl or polyethylene glycol (PEG) moiety

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = an amino acid that may be either an L-Pro or a
      D-Pro moiety

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa = an amino acid that may be either an L-Leu or a
      D-Leu moiety

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN
      (SEQ ID NO:207) via a moiety providing covalent
      attachment between N and C terminal portions of the
      peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<400> 206
Lys Xaa Val Ser Xaa Ser Tyr Arg Cys Pro Cys Arg Phe Xaa
1           5           10

```

<210> 207  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> portion of synthetic CXCR4 agonist SDF-1-derived cyclic acid (K20/E24)

<220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KXVSXSYRCPCRF (SEQ ID NO:206) via a moiety providing covalent attachment between N and C terminal portions of the peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)

<220>  
 <221> MISC\_FEATURE  
 <222> (6)..(10)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION

<400> 207  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10

<210> 208  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic CXCR4 agonist

<220>  
 <221> MISC\_FEATURE  
 <222> (17)..(18)  
 <223> Gly in positions 17 and/or 18 may be independently present or absent

<220>  
 <221> MISC\_FEATURE  
 <222> (20)..(24)  
 <223> side chain cyclized using lactam formation

<220>  
 <221> MOD\_RES  
 <222> (31)..(31)  
 <223> AMIDATION

<400> 208  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Phe Gly Gly  
 1 5 10 15  
 Gly Gly Leu Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 20 25 30

<210> 209  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (14)..(14)  
 <223> Xaa = Phe linked to Leu at position 1 of XKWIQEYLEKALN  
 (SEQ ID NO:210) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <400> 209  
 Lys Pro Val Ser Leu Ser Tyr Arg Ala Pro Phe Arg Phe Xaa  
 1 5 10  
  
 <210> 210  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> portion of synthetic CXCR4 agonist  
  
 <220>  
 <221> MOD\_RES  
 <222> (1)..(1)  
 <223> Xaa = Leu linked to Phe at position 14 of KPVSLSYRAPFRFX  
 (SEQ ID NO:209) via a moiety providing covalent  
 attachment between N and C terminal portions of the  
 peptides, such as NH-2-(CH-2)-n-COOH (n = 0-20)  
  
 <220>  
 <221> MISC\_FEATURE  
 <222> (2)..(6)  
 <223> side chain cyclized using lactam formation  
  
 <220>  
 <221> MOD\_RES  
 <222> (13)..(13)  
 <223> AMIDATION  
  
 <400> 210  
 Xaa Lys Trp Ile Gln Glu Tyr Leu Glu Lys Ala Leu Asn  
 1 5 10  
  
 <210> 211  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> 4 glycine linking moiety, [linker]  
  
 <400> 211  
 Gly Gly Gly Gly  
 1

<210> 212  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> three or four glycine linker

<220>  
<221> MISC\_FEATURE  
<222> (4)..(4)  
<223> Gly in position 4 may be present or absent

<400> 212  
Gly Gly Gly Gly  
1

<210> 213  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> G-1-4 linker

<220>  
<221> MISC\_FEATURE  
<222> (2)..(4)  
<223> Gly in positions 2-4 may be present or absent

<400> 213  
Gly Gly Gly Gly  
1

<210> 214  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> variable spacer monomer

<220>  
<221> MISC\_FEATURE  
<222> (3)..(4)  
<223> Gly in positions 3-4 may be present or absent

<400> 214  
Gly Gly Gly Gly  
1